



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H01M 4/36, 4/58, 4/60, 4/02, D01F 9/127	A1	(11) International Publication Number: WO 99/50921 (43) International Publication Date: 7 October 1999 (07.10.99)
(21) International Application Number: PCT/EP99/01943 (22) International Filing Date: 23 March 1999 (23.03.99) (30) Priority Data: 09/052,366 31 March 1998 (31.03.98) US 134351 28 April 1998 (28.04.98) JP (71) Applicant (for all designated States except US): AVENTIS RESEARCH & TECHNOLOGIES GMBH & CO. KG [DE/DE]; D-65926 Frankfurt am Main (DE). (72) Inventors; and (75) Inventors/Applicants (for US only): OGURA, Shizuo [JP/JP]; 3-31-25, Kamiigusa, Suginami-ku, Tokyo (JP). MOKUDAI, Hidehisa [JP/JP]; 1726, Maginu, Miyamae-ku, Kawasaki-shi, Kanagawa-ken (JP). MURATA, Makoto [JP/JP]; 2-4-6-508, Fujimi, Tsurugashima-shi, Saitama-ken (JP). DAVIES, Barrie, Linton [US/US]; 726 Skytop Road, Waxhaw, NC 28173-9329 (US). (74) Common Representative: AVENTIS RESEARCH & TECHNOLOGIES GMBH & CO. KG; Patent- und Lizenzabteilung, Gebäude K 801, D-65926 Frankfurt am Main (DE).		(81) Designated States: CA, JP, KR, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>
(54) Title: LITHIUM BATTERY AND ELECTRODE (57) Abstract An electrode includes an electrically conductive matrix containing a disulfide group, wherein an S-S bond of the disulfide group is cleaved by electrochemical reduction and reformed by electrochemical oxidation. A plurality of carbon nanotubes are substantially disentangled and dispersed in the electrically conductive matrix. The electrode can be used as a cathode of a lithium battery. A method for producing disentangled carbon nanotubes includes the steps of: adding a plurality of aggregates of carbon nanotubes to a liquid; and providing sheer force (e.g. passing the liquid through a narrow gap at a high speed) onto the liquid for disentangling the aggregates of carbon nanotubes therein.		